IN THE CLAIMS:

1. (Currently Amended) A gerotor and bearing apparatus for a downhole whirling mass orbital vibrator generating vibration in a borehole, which apparatus comprises:

a pair of ~~gerotor~~ gerotors being axially spaced and coaxially aligned;

each of said gerotors having ~~with~~ an inner gear rotated by a shaft having one less lobe than an outer gear;

a whirling mass attached to said shaft;

an upper track roller bearing attached to said shaft engaging and rolling on an upper sleeve;

a lower track roller bearing attached to said shaft engaging and rolling on a lower sleeve wherein said bearings are on opposite ends of said whirling mass; and

means to rotate said inner gears, said mass, and said bearings eccentric from an axis of said shaft in a selected rotational direction to cause said mass, said inner gears and said bearings to backwards whirl in an opposite rotational direction.

2. (Canceled)

3. (Canceled)

4. (Previously Amended) A gerotor and bearing apparatus as set forth in Claim 3 wherein said bearings and said sleeves are replaceable.

5. (Canceled)

6. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said means to rotate said inner gear, said mass, and said bearing in a selected rotational direction includes a drive shaft with a plurality of U-joints.

7. (Previously Amended) A gerotor and bearing apparatus as set forth in Claim 1 including a fluid pump powered by said shaft providing a self-contained drip lubrication system having a fluid pump moving lubricating oil from an oil sump.

8. (Original) A gerotor and bearing apparatus as set forth in Claim 7 including a pair of U-joint assemblies.

9. (Canceled)

10. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said backwards whirling mass is an elongated cylinder.

11. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said backwards whirling mass produces vibration energy which is used in enhanced fluid recovery.

12. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said backwards whirling mass produces vibration energy which is used as a seismic source.

13. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said backwards whirling mass is an elongated cylindrical configuration with a diameter less than said housing.

14. (Original) A gerotor and bearing apparatus as set forth in Claim 1 wherein said inner gear backwards whirl at a speed defined by a factor

$$K = \frac{n}{N-n}$$

where n = number of lobes on inner rotor and
N = number of lobes on outer rotor

15. (Currently Amended) A method to generate vibrational energy in a borehole, which method comprises:

rotating a pair of axially spaced and coaxially aligned gerotors by rotation of an inner gear ~~of a~~ in each of said gerotors ~~gerotor~~ by a shaft in a selected rotational direction wherein each said inner gear has one less lobe than an outer gear;

rotating a whirling mass in a selected rotational direction by rotation of said shaft so that said mass and said inner gear backwards whirl in a direction opposite to said selected rotational direction; and

transmitting centrifugal force created by said whirling mass from an upper bearing to an upper cylindrical sleeve and from a lower bearing to a lower cylindrical sleeve by contacting and rolling on said sleeves eccentric from an axis of said shaft wherein said bearings are attached to said shaft on opposite ends of said whirling mass.

16. (Original) A method to generate vibrational energy in a borehole as set forth in Claim 15 including transmitting said centrifugal force to a downhole casing.

17. (Original) A method to generate vibrational energy in a borehole as set forth in Claim 15 wherein said centrifugal force generates vibrational energy.

18. (Canceled)

19. (Previously Amended) A method to generate vibrational energy in a borehole as set forth in Claim 15 including transmitting said centrifugal force from said sleeves to slips and to a casing.

20. (Currently Amended) A gerotor and bearing apparatus for a downhole whirling mass orbital vibrator generating vibration in a borehole, which apparatus comprises:

a pair of gerotors axially spaced from each other and coaxially aligned;;

each of said ~~gerotor~~ gerotors having ~~with~~ an inner gear rotated by a shaft having one less lobe than an outer gear;

a whirling mass attached to said shaft;

a pair of track roller bearings attached to said shaft on opposite ends of said whirling mass;

means to rotate said inner gears, said mass, and said bearings eccentric from an axis of said shaft in a selected rotational direction to cause said gears, said mass, and said bearings to

backwards whirl in an opposite rotational direction so that said track roller bearings roll on cylindrical sleeves; and

means to maintain angular radial position and angular alignment between said ends of said rotating mass.